Fact Sheet

US Army Corps of Engineers
U.S. Army Engineer Research and Development Center January 2004

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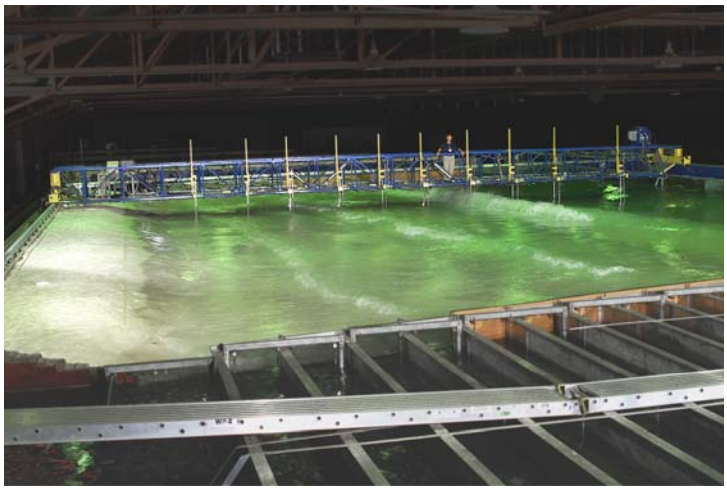
Large-Scale Laboratory Investigation of Longshore Sediment Transport

Purpose: To develop more accurate total longshore sediment transport rate predictors for use in all levels of project design.



Background: Effective coastal project design and maintenance and effective coastal sediment management requires accurate estimators of the total long-shore sediment transport rate as well as its cross-shore distribution. Methods for predicting longshore sediment transport rates are limited by both a lack of fundamental knowledge of sediment transport processes and by field and laboratory data sets that adequately measure transport processes along with wave and current forcing. The CERC formula for predicting total longshore sediment transport rates has an accuracy estimated at +/- 50 percent; and in some cases less accuracy. Use of the CERC formula and wave climate information to es-timate net and gross longshore sediment transport rates can produce transport estimates that are several hundred percent high in some cases.

Facts: The Coastal and Hydraulics Laboratory constructed a state-of-the-art laboratory facility, the Large-Scale Sediment Transport Facility (LSTF), for conducting sediment transport research. Experiments in the facility have produced high-quality data sets of surf zone hydrodynamics and sediment transport processes to support present and future research. LSTF data was used to de-velop a numerical model to predict longshore currents that drive longshore sediment transport, and a physics-based model to calculate the cross-shore distribution of longshore transport rates is being developed.

Points of Contact: For additional information, please contact Mr. Ernest R. Smith at 601-634-4030 (Ern.Smith@us.army.mil) or Mr. Bruce Ebersole at 601-634-3209 (Bruce.A.Ebersole@us.army.mil).